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ABSTRACT

This guide to evaluation of home economics instruction covers five major topic areas: (1) Purposes for evaluating pupil learning; (2) steps to take in developing the needed evaluation techniques; (3) suggested means to achieving purposes related to evaluation; (4) tips on improving evaluative practices, and (5) notes on enlisting student help in the evaluation process and making it a learning experience for them. Specific techniques are enumerated and explained in each section. Sample assignments, guided response items, filing suggestions, survey and test ideas are also provided. The four appendixes contain information on classification of cognitive objectives and suggested types of behaviors, classification of affective objectives and suggested types of behaviors, classification of psychomotor objectives and suggested types of behaviors, and generalizations basic to test items. (LAS)

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DETERMINING THE EFFECTIVENESS OF TEACHING HOME ECONOMICS

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Hester Chadderdon

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Chapter I

WHY SHOULD I EVALUATE THE LEARNING OF MY PUPILS?

Several important purposes can be attained by using evaluative techniques and procedures. The particular purpose may call for a special or for a combination of techniques. Later when these techniques are enumerated, attention will be called to the major purposes which each may serve.

To Discover Individual Differences and Diagnose Learning Difficulties

The discovery of individual differences and diagnosis of learning difficulties is a particularly important purpose if a teacher is to plan learning experiences that meet the needs of all pupils in her classes. Knowing where a pupil is in the learning sequence is essential for planning next steps. Also much time and frustration can be saved by discovering such learning difficulties as inadequate vocabulary, poor muscle coordination, slow reading habits, and careless methods of problem solving.

To Determine the Effectiveness of the Learning Experiences

It is commonly recognized that curriculum and evaluation are closely related, and the determination of the effectiveness of learning experiences spells out one aspect of the relationship. Knowing when sufficient experiences have been provided or whether additional ones are needed can also save time. In addition, evaluative techniques are useful in determining the strengths and weaknesses of the entire curriculum.

To Motivate Learning and Provide Pupils with Valuable Learning Experiences in Self-Evaluation

Threatening to give low grades is one form of motivation, but not one used by teachers who recognize that threats of this type are ineffective over the long haul, particularly for pupils who are prone to drop out. Helping students to see progress toward accepted goals, to determine strengths, and to discover how much there is to learn are positive means of motivation. They imply a meaningful

teacher-pupil relationship, a working together for common goals.

Growing up involves assuming responsibility for one's own behavior. This includes setting goals and determining the extent to which goals are being achieved. The schools in the past have too often assigned these tasks to the teacher, not recognizing fully that they can be very valuable learning experiences for pupils.

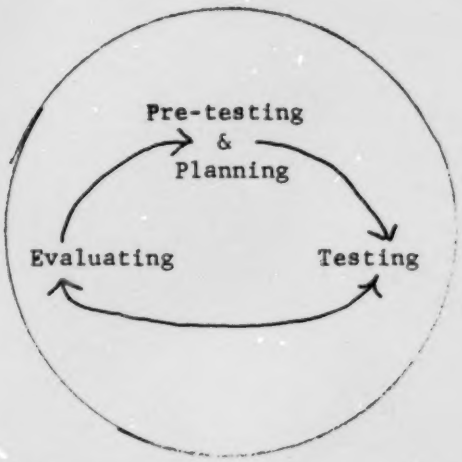
To Provide a Basis for Assigning Grades

Recognition of evaluation as a basis for assigning grades is common and is too often the only consideration given by teachers. It is a legitimate purpose, but in the view of many educators, it is not the most important. In fact, many are questioning the use of grades, and no doubt they will play a lesser role in most schools in the very near future. Some secondary schools are now using only pass-fail grades. In the meantime, teachers can make grades more meaningful both to pupils and parents when they are based on evidence relating to a broad spectrum of expected behaviors.

Chapter II

WHAT STEPS SHOULD I TAKE TO DEVELOP THE EVALUATION TECHNIQUES I NEED?

First, it is essential to recognize the circular relation of the curriculum and evaluation. The circle starts with pre-testing and planning of the curriculum, moving to the teaching or putting the curriculum into effect, then evaluating the results. If the latter reveals weaknesses in the planning, replanning



is called for and the circle is completed. A counter-clockwise movement on the diagram at the point of evaluation indicates that if the teaching has been inadequate additional learning experiences are needed before pupils can progress satisfactorily.

State Objectives as Behaviors Expected

The criteria for both the curriculum and evaluation are the objectives of the school and a particular course. Often these objectives are too vague to provide guidance for selecting experiences or appropriate evaluative techniques. If, however, they are stated in terms of the behaviors expected of the pupils, they become more meaningful. For example, the objective of "ability to select housing for the family" would include such behaviors as:

Analyzes factors needing to be taken into account by a given family
Decides the most important factors to consider
Analyzes the qualities in various types of housing.

These behaviors can be useful in selecting learning experiences as well as means of collecting evaluative data.

Select Concepts and Generalizations

The content of a particular course also ties together the curriculum and evaluation. The concepts and generalizations* form the backbone of both and are, of course, relevant to the objectives. When developing a test item designed to obtain evidence of cognitive learnings, the teacher must be aware of the generalization and the applications which she expects of her pupils to use in solving the problem posed in the item. For example, if learning experiences had been employed to teach the generalization: Children adjust slowly to new situations, this item could be used to determine their ability to apply the generalization:

> Because of guests in the house, Ann, age 7, has been told to sleep with Jewell, her 15-year-old sister. Ann, accustomed to going to bed at 8:30 o'clock, stays awake until Jewell gets to bed about 10:00 and then wants to talk.
>
> What might explain why Ann stayed awake?
>
> In the list below, check the reason(s) which best explain Ann's behavior.
>
> ___ 1. Ann wants to act grown-up like her sister.
> ___ 2. The room is different and that gives Ann more things to stay awake and look at.
> ___ 3. Being in a strange bed, she is afraid to go to sleep.
> ___ 4. Ann likes to talk to her older sister.
> x** 5. Ann is excited by the change in beds and is unable to go to sleep as she usually does.
> ___ 6. Ann thought it would be fun to have someone to talk to.
> ___ 7. She is curious about her older sister's activities.

Choose Means of Collecting Evidence of Behavior

There are many ways of obtaining evaluative data concerning the learnings of pupils. Often several might be useful for a particular objective. A number can

*The American Home Economics Association has a useful publication: Concepts and Generalizations: Their Place in High School Home Economics Curriculum Development.

**Indicates the response consistent with this generalization.

be used in determining cognitive* learnings; others are more appropriate for affective* or psychomotor* types of objectives. Curriculum guides frequently list the means that might be used for each objective, or a teacher could prepare her own list as she plans the course. In the next sections a variety of techniques is suggested and some are described.

Develop and Try Means Selected

If the teacher can find techniques that are appropriate for her curriculum, then this step can be eliminated. All too often, however, she is forced to develop some of her own. Even if one is found which appears appropriate, it would be wise to use it the first time on a trial basis. Some devices look better than they prove to be.

Improve Devices and File

Frequently the first use of a device will reveal weaknesses that need to be corrected before retrial. After it has been improved to the point of satisfaction, then it is ready to be placed in a file for use with another class. Developing really effective devices is time consuming; hence an evaluation file can contribute immeasurably.

*See Appendix No. 1, No. 2, and No. 3.

Chapter III

WHAT MEANS CAN I USE TO ACHIEVE PURPOSES RELATED TO EVALUATION?

The methods chosen to collect evidence regarding pupil behavior are related to the purposes to be served and the nature of the objective; i.e., cognitive, affective, or psychomotor. Most methods are useful for any program whether it be for consumer and homemaking or occupational home economics and whether the learning experiences are programmed or presented in a more traditional manner.

Evaluative Techniques Related to Types of Objectives and Purposes

Type of objective	Purposes of Evaluation			
	Discover individual differences & diagnose learning difficulties	Determine effectiveness of learning experiences	Motivate learning and provide learning experiences in self-evaluation	Provide a basis for grades
Cognitive	Observation	→	→	→
	Assignments	→	→	→
	Games	→	→	→
	Essay tests	→	→	→
	Guided response tests	→	→	→
	Role playing	→	→	→
	Incomplete stories	→	→	→
Affective	Observation	→	→	→
	Incomplete sentences	→	→	
	Incomplete stories, pictures	→	→	
	Attitude & value inventories	→	→	
	Games	→	→	
	Essay test items	→	→	
	Anecdotal records	→	→	
	Role playing	→	→	
	Logs	→	→	
Psychomotor	Performance tests	→	→	→
	Observation	→	→	→
	Score cards & rating scales	→	→	→
	Checksheets	→	→	→

Several of the techniques have been selected for discussion: games, observation, assignments, projective techniques, surveys, and tests.

Games

Recently educational literature has referred to games as a learning experience, but they can also be used as an evaluation technique. Using the term in a non-technical sense, games vary from the very simple cross-word puzzle or bingo to a complex situation which simulates real life. An example of the latter was worked out by one teacher and involves the selection of housing for families at different stages of the life cycle and for singles who are working. The families could vary with the socio-economic status of the class members. The ones this teacher used were the following: a couple in high school living with the husband's parents but needing to move because of pregnancy; a technician with children aged 3, 7, and 10; a widow working for the local newspaper; a retired farmer and his wife; a father, day-laborer, a mother, factory worker, children 13, 15, and 17; and a single man who is a construction worker. Each student is assigned or selects a family or individual for whom he is to choose housing. Before making this choice the player must decide what two values are most important for his family or individual, what their resources and goals are, and whether they should buy or rent housing. The board contains squares describing 19 housing choices; each player in turn rolls dice to determine a possible housing choice which he may accept or reject in relation to its suitability. There are also chance spaces on the board and cards which may indicate a change in the family's situation, such as loss of a job. The entire game is based on a set of generalizations and requires the pupil to use these in arriving at a solution. The score he receives is based on the application of these generalizations which involve such factors as resources, family values, and composition of the family. When the game was used with juniors and seniors (both boys and girls), they found it both fun and a challenge. This game like many on the market employs the procedures in the game of Monopoly.

The criteria for games listed by Spitze in Choosing Techniques for Teaching and Learning (p. 19) are pertinent for those used in evaluation.

Observation of Behavior

This method has been one of the most widely used by home economics teachers. Unfortunately, however, it often is too casual to be of value. We all know that one incident is not a safe basis for determining typical behavior; hence the need to make several observations of each pupil. To avoid basing judgment on recalled observations, a teacher must keep records, particularly if the incidents observed cover a span of time. Checksheets and anecdotal records will aid in recall and help the teacher to become aware of the number of observations available for judging whether a behavior is typical of a pupil.

A simple checksheet such as the following can easily be devised for use when pupils are making special reports:

Pupils	Has ideas well organized	Includes all important points	Speaks clearly	Answers questions adequately
Mary S. Jane M. John H.				

Checksheets could be used for a variety of behaviors including management in the food laboratory or a demonstration by an individual or a group.

A checksheet has the additional advantage of making the recording easy and is especially useful for behaviors observed in the classroom or laboratory. The data recorded often are particularly useful in discovering individual differences and diagnosing learning difficulties. Since most performance tests are very time-consuming and difficult to administer, observation in the laboratory is often the most feasible method of collecting data about psychomotor behaviors.

The anecdotal record can also be employed to advantage, especially when incidents are infrequent. Because it requires more recording time than checksheets, its use, however, is often restricted to behaviors involving human relationships.

Here is one record that a teacher made:

> Alice, a new pupil when school opened in the fall, is not very attractively dressed and is usually alone in the halls. Today when she came into my classroom I noticed that she had been crying. Phyllis was behind her and evidently noticed this too. She sat down beside Alice, put her arm around her shoulder, and patted her.

Assignments

One of the most useful means of collecting evidence of pupil learnings is the assignment. Too often these take the form of Read page 2 to 11" and, as Spitze noted in Choosing Techniques for Teaching and Learning (p. 16), may produce little learning. If, however, a problem, either a simulated or a real life situation, is posed, the assignment can lead to meaningful reading and be useful in diagnosing such learning difficulties as inadequate vocabulary and poor methods of thinking. The solution to the problem might be written or given orally during a class discussion. The former has decided advantages because it allows the teacher to analyze the responses more thoroughly. The four projects developed as learning experiences by the Department of Home Economics, NEA, in the portfolio entitled ECHO illustrate well some of the possibilities which assignments can serve both as learning and evaluative exercises. For the latter, the teacher is interested not only in whether the pupils have solved the problem by applying the generalizations involved but also wherein they have had difficulties that indicate need for further teaching.

There are many types of assignments which may not involve reading and may be short or long term. Examples that could yield evaluative data as well as promoting learning are the following: analyzing an advertisement to discover fallacies, arranging furniture in a room to achieve a given purpose, planning suitable menus for a child's party, interviewing parents or neighbors to determine possible reasons for attitudes, and demonstrating a new method of making a pocket.

Before the assignment is made, bases for evaluating it should be decided and made clear to the pupils so that they have a framework for proceeding. Although

clarity of an assignment is important, provision should be made for creativity.

Projective Techniques

Four projective techniques can be employed in evaluating learning: role playing, completing unfinished sentences and stories, and writing stories based on pictures. Spitze (p. 18) discusses role playing and indicates that it is "especially useful in studying attitudes"--affective types of behavior. The discussion which follows the role playing also can help to uncover feelings.

The unfinished sentence may reveal attitudes or cognitive types of learning. If the former is the goal, the sentence needs to evoke feelings such as resentment, consideration for others, biases, etc. For example, to obtain evidence of acceptance of children, the following incomplete sentences were found to be helpful: When children ask lots of questions, I _____. When a child refuses to share his toys, I _____. When a child kicks and yells, he _____. In a clothing construction unit, this sentence was used to determine pupils' goals: When I finish this garment, I hope I will _____. After the garment is completed a sentence of the following type will aid in collecting evidence of cognitive behaviors: On my next project, I can make better use of class time by _____; I need more practice on these techniques: _____.

Today's Education, the journal of the National Education Association, carries a series of unfinished stories designed for use in elementary school classes. Some secondary school teachers have found them effective in child development units by asking the pupils to finish the stories as they believe a child would. Other teachers develop stories that are appropriate for their objectives and that stimulate pupils to react to the situation in terms of a decision or action. The pupils might even write their own stories.

Pictures and cartoons that appear in newspapers or other publications as well as stick figures or sketches have been found to be useful if the situation

is one which, like the unfinished sentence or story, involves feelings. An example follows:

The projective techniques are a most valuable means of obraining evidence of pupils' relationship to affective types of objectives. Because these objectives are so difficult to assess, the projective techniques take on great significance, but they need to be used wisely so that pupils do not tire of them or become "test wise" and fake their responses.

Surveys

Surveys are particularly useful in determining the effectiveness of the curriculum. A survey of the practices of former pupils, for example, can reveal strengths and weaknesses in a program designed to prepare for homemaking or for employment. A questionnaire sent to graduates or an interview with them can, if they are made to believe that you want honest responses, give you clues to needed changes. Employers' evaluation of the adequacy of the training for employment is often sought by questionnaire. Parents can aid provided that they feel that any adverse reactions will not be reflected in their children's grades and that the teacher is sincere in her request for both strengths and weaknesses in the program.

Tests

Since tests are probably the most frequently used technique and too often are not adequate, considerable attention is given to them here. Several types of tests commonly used today can serve all of the purposes listed earlier. Cognitive, affective and psychomotor objectives can all be assessed by tests, but some are more appropriate for a given type.

Performance Tests

For psychomotor behaviors the performance test is the best suited. Designing and administering such a test, however, is not easy. It must be carefully planned so that the mechanics do not overshadow the behavior. For example, providing each pupil with the equipment needed often necessitates administrating the test to a relatively small group at one time. This, in turn, may mean that plans

must be made for worthwhile activities involving the remainder of the class. If the behavior relates entirely to a product such as a cake or a placket, a score card can simplify determination of the quality of the responses. When the behavior involves process and management of resources, observation must be used to collect the data during the test. A teacher cannot observe all the members of a large class and record the evidence even though she uses a check sheet. Because of these problems the recommendation is made that the performance test be used sparingly and that observation in the laboratory during regular class session be employed.

Essay Test Items

The essay test item has several advantages which no teacher should overlook in selecting her techniques. It can be employed for both cognitive and affective types of objectives, but it is particularly relevant to the cognitive at the level of synthesis where planning is involved. One of the objections to essay items is the difficulty of scoring the responses. Often this difficulty arises because the item is poorly designed or the teacher has not carefully thought through the bases for scoring. Such an item as "Discuss vitamins" invites the pupil to ramble rather than to organize what she knows about vitamins and makes scoring almost impossible. It also fails to require any application of knowledge. An item which forces the pupil to apply as well as to organize what he knows is the following: Plan a day's menus for a family containing parents and two elementary school children. Justify each selection of food in terms of its vitamin content and the nutritional needs of the members of this family. The responses can be scored in relation to the vitamin adequacy and the reasons given for selection.

Since more time is usually needed for responding to essay items, some teachers use them as take-home tests or combine them with guided-response items in a test to provide a more adequate sample of behavior and to keep the time for scoring reasonable.

Scoring the responses to an essay item presents certain problems even though, as suggested earlier, the item has been carefully designed to elicit responses consistent with the objectives and generalizations. These are also basic to scoring. The following item is based on the objective: Recognizes that families may differ in many ways due to a variety of factors.

> The Larson family and the Mayfield family are alike in many ways but different in others. They have about the same income and their houses are similar, but some of the foods and the way they eat are very different. The Larsons eat more fish and cheese than the Mayfields do. The Mayfields have their dinner at night, and Mr. Mayfield serves the food at the table. The Larsons have their dinner at noon and the food is put into serving dishes which are passed to each member of the family.
>
> What might be the reasons these two families do these things differently?

The generalization involved in this item is: Family practices often result from differences in goals, values, beliefs, cultural heritages and expectations, resources available, age of family members, occupations.

The scoring could allow one point for each factor or reason given; i.e., cultural heritages such as differences in nationalities or customs in parents' homes; values such as status, etc. Determining the acceptable responses before administering the item will increase the reliability of the scoring. Some teachers also consider grammar, spelling, and sentence structure; but if they do, they should give a separate score for these items since they involve a different objective. The scores are more diagnostic and meaningful both for pupil and teacher if they are related to an objective than if unlike aspects of learning are added together.

Guided Response Items

The term guided response is used here to refer to any item which is structured so that the pupil selects rather than proposes responses. Multiple-choice, the term often found in the literature, has too limited a focus to include a recently suggested type--the simulated situation which may compose an entire test. Such items can be designed to involve almost all of the cognitive learnings and

are especially suited to the higher levels of application, analysis, and evaluation.

There are numerous possibilities for eliciting responses. Here are examples:

1. Describe what has happened and ask the pupil to select a reason which might explain the happening:

   Donald's mother and new baby brother came home from the hospital two weeks ago. A neighbor took care of two-year-old Donald while his mother was away. He has been telling his mother when he needed to go to the toilet for the last year. However, he has wet pants almost every day since his mother returned from the hospital. What may be reasons which would help explain Donald's behavior? Use an L to indicate whether a reason is a likely explanation and a U to indicate an unlikely explanation. Mark each reason.

   U a. He may be just being naughty.

   L* b. He may want more attention, as before the baby came.

   U c. He may just be in a stage and will overcome it.

   L* d. He may feel this is what he must do in order to rate with his mother.

   L* e. He may feel lonely and unwanted.

2. Present a problem, require the selection of the best course of action, and the reasons to support it.

   Madeline, 15, the youngest of five children, becomes annoyed when her parents introduce her to strangers and mention that she is their "baby." She often gives the family friends a very poor impression of herself with such remarks as "Do I look like a baby?" or "When will you ever stop calling me a baby?"

   What should Madeline do?

   Check with an x the answers you think best.

   ____ A. Act as if she is growing up.

   ____ B. Ignore the remarks.

   ____ C. Act as if she is proud to be called the baby.

   x** D. Talk it over with her parents.

   ____ E. Make a joke of it when her parents say such things.

   Check with an x the reason or reasons for choosing your answer(s).

   x 1. A better understanding would be created between Madeline and her parents.

   ____ 2. Her parents are probably just expressing their love for her.

   ____ 3. She needs to prove to her parents that she is no longer a baby.

   ____ 4. This would prevent a family squabble.

   ____ 5. Her friends may tease her if they find out that she is called a baby.

   ____ 6. The remarks she makes embarrass her parents.

   ____ 7. She is too old to be called a baby and made to feel young and embarrassed in public.

*Indicates key. See Appendix No. 4, Generalization 1 (above).
**See Appendix No. 4, Generalization 2.

3. Describe a course of action and ask reasons to support it:

As Mrs. Smith washed the dishes, she let four-year-old Marcia wipe the pots and pans. Marcia said, "I'm helping Mommy."

Why was Mrs. Smith wise to let Marcia wipe the pots and pans?

Check the reason(s) you think explain best why Mrs. Smith should let her help.

_____ 1. She was teaching Marcia to be a good housekeeper.

_____ 2. Mrs. Smith wanted to let Marcia think that she was a big girl.

_____ 3. Mrs. Smith wanted to keep Marcia out of mischief.

__x*__ 4. Mrs. Smith wanted to make Marcia feel that she was important.

_____ 5. She was getting Marcia to love her.

4. Predict what would happen and explain why:

A cup of black coffee and a cup of coffee containing cream are spilled on a cotton tablecloth. When the cloth is washed in cool water with no soap, what is likely to happen?

_____ a. The black coffee spot will be removed and the coffee and cream spot will remain.

_____ b. The coffee and cream spot will wash out more completely.

__x*__ c. Neither spot will come out.

_____ d. The coffee will wash out of both, but the cream spot will remain.

Which reason or reasons explain your answer?

_____ 1. The black coffee is less soluble and will cause a more permanent stain.

__x*__ 2. Soap is needed to remove the cream before the coffee can be removed.

_____ 3. The cold water will set the cream.

_____ 4. The cream acts as a stain preventing agent.

_____ 5. Black coffee is more concentrated than coffee with cream.

_____ 6. Cream surrounds the coffee particles and can be washed out with the cool water.

*See Appendix No. 4, Generalizations 3, 4, and 5.

5. Substitute another course of action:

Sally has little color in her skin and wants to improve her meals so that she will have more color. Yesterday she ate these meals and snacks:

Breakfast
Tomato Juice
Toast Butter
Cereal

Lunch
Potato Chips
Cup Cake
Milk

Snacks
Candy Bar
Coke

Supper
Minute Steak Potatoes
Canned Peas
Lettuce Salad
Chocolate Donut
Milk

Below are listed some foods that Sally might substitute for certain foods. Check (x) the substitution that would help to improve the color of her skin. If neither of the two is better than the food in the menu, do not check either substitute.

	Breakfast	Substitutes		Supper	Substitutes	
A.	Cereal	___	1. Bacon	F. Minute Steak	___	1. Hamburger
		x*	2. Egg		x*	2. Liver
	Lunch	**Substitutes**				
B.	Cup Cake	x*	1. Apricots	G. Canned Peas	___	1. Cauliflower
		___	2. Pears		x*	2. Frozen Peas
C.	Potato Chips	___	1. Meat Sandwich	H. Head Lettuce	x*	1. Leaf Lettuce Salad
		x*	2. Peanut Butter Sandwich		___	2. Celery Sticks
	Snacks			I. Chocolate	___	1. Cake
D.	Coke	___	1. Apple		x*	2. Ice cream
		x*	2. Milk			
E.	Candy Bar	___	1. Cookies			
		x*	2. Banana			

*See Appendix No. 4, Generalizations 6, 7, 8, and 9.

Chapter IV

HOW CAN I IMPROVE MY EVALUATIVE PRACTICES?

Involve Higher Cognitive Levels of Behavior

Teachers professing that their objectives stress the use of knowledge are challenged to use evaluative techniques that require more than recall of facts. Otherwise, the evaluation is not valid and the pupils are "told" that learning facts is more important than learning to think and to apply what they learn. If higher levels of cognitive* behavior are to be assessed, they should be asked to explain, illustrate, select courses of action, solve problems, recognize relationships among ideas, distinguish cause-and-effect relationships, plan, create, design, compare, judge, and appraise. These behaviors need to form the basis for learning experiences as well as evaluation. Test items, both essay and guided response, can often be improved greatly by presenting a situation that is true to life and asking the pupil to propose or select a solution to the problem involved. Other techniques such as assignments and games also can require the application of generalizations.

Require Pupils to Indicate Reasons for Solutions

To obtain the maximum benefit from a test item, require not only that a solution be proposed or selected but also that the solution be supported by one or more reasons. The latter will demonstrate more clearly than the solution that the pupil understands the generalization or concept involved in the problem. The effective teacher is constantly asking "Why?" Several of the items given earlier are illustrations of ways to obtain evidence of their understandings. Essay items can also be improved by whys as in this example:

> The four girls working together on a project in housing are having some difficulties in getting along together. Mary Alice has had more experience in selecting colors so she decides what colors they will use for the room. Sometimes Ruth doesn't seem to be participating, merely day dreaming. She says she is given only routine jobs to do. What changes need to be made in the ways these four girls are working so that they become a more effective group? Give at least one reason for each change you suggest.

Use Essay Responses to Obtain Plausible Responses

It is difficult to secure responses, both solutions and reasons, which are plausible to pupils. Part of the difficulty is due to a teacher's unawareness of the pupil's misconceptions. Sometimes she notices these during class discussion, but too often all or even the most important ones are not revealed. The best method for a teacher to use is to involve a situation in an essay item, asking for the pupils' solutions and/or reasons. An analysis of their responses will invariably reveal misconceptions which will make excellent "distractors" for guided response test items. They not only will distract the pupil whose understanding of the generalization is faulty but also will aid in making the teacher realize wherein her teaching needs strengthening.

In all of the illustrative test items, the unsatisfactory responses were obtained by this method. The acceptable responses are, of course, based on generalizations.

Recognize That It Takes Time and Effort to Build Up a File of Good Items

Making up a new set of test items each time the teacher needs to administer a test is a wasteful practice. Really effective items result from the application of several steps and, hence, should be filed for later use rather than discarded. After selecting a new situation that involves one or more generalizations and concepts, administer it as an essay item (see section above), analyze the responses to obtain plausible solutions and reasons, select the responses that involve the most common misconceptions, administer the item to a new class, note needs for improvement, if any, and retry or file for future use. This may seem like a long process, but over a period of time it will bear fruit that is unobtainable by shorter means. For example, each time a test is prepared include two or three essay items and also try out one or two guided response items that have resulted from previously administered essay items.

Analyze Responses to Determine Quality and Needs for Improvement of Items

During the trial of a new item, deficiencies often will be revealed. One of the most common is lack of clarity either in the directions or in the problem when insufficient information is given to make a satisfactory solution possible. One way to determine the success of an item is to analyze the responses in terms of pupil ability. An important quality of an item is its ability to differentiate among pupils; i.e., the pupils who have learned the most should more commonly accept the best responses. To ascertain this quality divide the test papers into two groups: (1) the half whose total scores are higher, and (2) those whose scores are lower than the first group. A frequency tabulation of the responses of the two to a guided response item can be made quickly by a teaching aide, a secretary, or a student helper. Such an analysis is illustrated here:

Item 1	Upper ½	Lower ½	Difference	Total
Solutions				
1	1	2	1	3
X 2	7	2	5	9
3	3	7	4	10
Reasons				
X A	5	2	3	7
B	0	0	0	0
C	3	6	2	9
X D	8	3	5	11
E	6	3	3	9

(X acceptable responses)

Each of the solutions differentiated in the right direction; i.e., numbers 1 & 3 were accepted more frequently by the lower group and number 2 by the upper group. Among the reasons, B failed to attract any takers; hence a substitute should be found by referring again to the essay responses obtained earlier. Reasons A, C, and D differentiated satisfactorily, but E proved to be a reversal; more high than low scorers accepted it. The best way to determine why this response was plausible to the six high scorers is to ask each why she believed it a satisfactory reason. This can be done by indicating that you are trying to improve the tests and need their help. Often the better pupil will have "read

into" the response something that you did not intend, indicating either that the situation needs to be clarified or that the response is confusing.

Another way of looking at the responses of pupils is to see how difficult an item is. Although it is desirable to have a few relatively easy and a few relatively difficult items in a test, most test specialists recommend that the majority of the items attain somewhere near a 50 per cent difficulty level; i.e., half of the class responds satisfactorily. Another look at the item analysis given earlier discloses that Solutions 2 and 3 achieve this (9 out of 22 = 40%; 10 out of 22 = 46%), but Solution 1 needs to be replaced with a solution that is more plausible. Reasons C and E also have a 40 per cent difficulty level, and D a 50 per cent level, but A falls to 31 per cent.

Use Responses to Determine Needs for Learning

The total scores derived from a test yield little useful information. They indicate only the relative position of each pupil in relation to the others in the class to which the test has been administered unless norms have been established. They are useful, of course, in helping decide grades. The teacher wishing to use the responses to attain evidence of the effectiveness of the learning experiences and to determine what the next steps in learning are for each pupil will look not only at the total scores but also at the specific responses. This can be accomplished in part by a second examination of the earlier item analysis. The data in the example given tell the teacher that nine of the twenty-two pupils selected the solution based on the generalization(s) involved. The thirteen who selected Solutions 1 and 3 need further help in understanding the application (assuming that the item was not ambiguous). The nine pupils should have also selected Reasons A and D in addition to the best solution if their understanding of the generalization was adequate. Also none of them should have accepted Reasons B, C, or E. An examination of answer sheets of these pupils will reveal

the ones who were able not only to select the best solution but also to support their choice fully. The remainder, along with the other thirteen pupils, are in need of further learning experiences. In addition, the analysis indicates that the misconceptions involved in Reasons C and E have not been fully dispelled since nine pupils accepted each of them as a sound reason.

Although it is somewhat more difficult to make an item analysis of essay items, it can be done and will reveal similarly useful information. To aid in such an analysis, you could design a check sheet by listing the acceptable responses in the left-hand column and adding unacceptable responses as they are found during the scoring process. Frequency tabulations can then be made during a second look at the responses.

Score Tests So That Partial Understanding is Rewarded

Not uncommonly many pupils obtain some but not full understanding of a generalization during the learning experience. Hence the method of scoring should provide for this eventuality so that those with some understanding will receive higher scores than those with little or no understanding. Using the item in the item analysis illustration means that those who select Solution 2 and Reasons A and D will obtain the highest score, those choosing at least one of the acceptable responses a somewhat lower score, and those choosing none of the acceptable responses a zero score. In other words, the assumption is made that partial understanding will result in one or two, but not three of the acceptable responses. The weights assigned to the responses can vary, but experience shows that the simplest weighting is as satisfactory as a more complicated method. For this reason it is suggested that each of the acceptable responses (both solutions and reasons) be given a weight of one. No correction for so-called guessing is recommended because this might penalize the pupil with partial understanding.

Chapter V

CAN MY PUPILS HELP IN AND LEARN FROM THE EVALUATIVE PROCESS?

Historically it was the teacher's responsibility to do all of the evaluating, but more recently recognition has been given to the value of active pupil participation in more ways than being the taker of tests. As pointed out earlier, students need to learn how to evaluate their own progress toward goals if they are to become self-actualizing adults. Also they are more likely to be motivated to learn if they can see their progress and their learning needs.

One learning experience which many homemaking teachers have provided is that of pupils' judging their own products in the food and clothing laboratories. This is a good early experience since it deals with tangible elements. The use of a score card and rating scale aids in the setting of standards of quality. Care needs to be taken, however, to keep the judging at an elementary level until they have developed some ability. Judging a zipper is easier than an entire garment that has been constructed; judging one aspect of a floor plan is easier than evaluating an entire plan. Expecting pupils to aid in developing a score card before they have used one is an illustration of putting expectations at too high a level. Teachers who involve pupils in the evaluative process should not become discouraged when the results are unsatisfactory because, like any learning, success does not come with one experience. The teacher needs to be realistic in the selection of experiences.

As pupils develop the ability to judge simple, tangible results, they are ready for more difficult problems involving more aspects and less tangible elements; i.e., the management of a meal, a children's party, relations with their peer group, etc.

The relation of teacher and pupil is extremely important here. Instead of the teacher trying to trap or catch the pupil making a mistake, ideally it is the two working together to discover progress and places where learning needs to go further. Teachers are successful in establishing this mutually helpful relationship when they are providing an atmosphere that allows a pupil to admit the need for further learning. When grades and competition are emphasized, it is difficult, if not impossible, to have effective pupil participation in evaluation.

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Appendix No. 1

CLASSIFICATION OF COGNITIVE OBJECTIVES AND SUGGESTED TYPES OF BEHAVIORS (Adapted from Bloom, Taxonomy of Educational Objectives, Handbook I: Cognitive Domain)

Cognitive objectives focus primarily on recall or recognition of knowledge and the development of intellectual abilities and skills.

A. Knowledge - involves recall of facts, generalizations, methods, processes, criteria, etc.

   Types of behaviors - recall, know, recognize, define, describe.

B. Intellectual abilities and skill involves utilizing knowledge in solving problems

   1. Comprehension - involves going beyond knowing or recalling.

   2. Application - involves recall and application of methods, processes, and generalizations to a new situation.

      Types of behaviors - apply, use, select, solve, relate factors.

   3. Analysis - involves the breakdown of a process or relationships or into its component parts, each viewed in relation to the whole.

      Types of behaviors - discriminate; interpret; identify issues, causes or reason; recognize assumptions and conclusions; recognize relationships among parts or ideas; distinguish cause-and-effect relationships; identify and relate factors.

   4. Synthesis - involves drawing elements from many sources and putting them together to form a product or proposing a plan of operations which is new to the individual.

      Types of behaviors - plan, create, design, perform (as an ability)

   5. Evaluation - involves judgments concerning the extent to which methods and materials satisfy criteria.

      Types of behaviors - evaluate, judge, appraise, conclude, compare.

Appendix No. 2

Classification of Affective Objectives and Suggested Types of Behaviors (Adapted from Krathwohl, Bloom, and Masia. Taxonomy of Educational Objectives Handbook II: Affective Domain*)

A. Receiving - involves being aware of, willing to attend (does not avoid the stimulus), and consciously perceives the stimulus.

Types of behaviors - is aware of (the feelings of others, satisfactions, importance of); is conscious of (needs of others); is tolerant of (others' behavior, beliefs, etc.); listens carefully to (talks, broadcasts, etc.).

B. Responding - involves actively attending to a stimulus; willingness to respond, deriving some satisfaction in response.

Types of behaviors - acquiesces to (rules, laws; assignments); is interested in (voluntarily seeks new information, new experiences); enjoys (human relations); listens with pleasure to (music).

C. Valuing - involves acceptance of and commitment to a value; behavior becomes sufficiently consistent and stable to have the character of a belief or attitude; at the highest level it becomes an emotional acceptance of a belief or value.

Types of behavior - desires to attain (optimum health, have affective relations with others); initiates action (writes letters to press, etc. on issues, initiates group action, assumes responsibility for action); is loyal to (goals of a group); is committed to and derives satisfaction from (volunteers to act, feels strongly and is never reluctant to display his feelings).

D. Organization - involves placing values into a system and determining relationships among them.

Types of behavior - crystallizes basic assumptions (underlying goals, codes of ethics, etc.); weighs alternates (relating to social goals); forms judgments (concerning types of life desired); rejects stereotypes (of people, cultures, occupations); recognizes that values conflict and formulates an ordered relation that is harmonious and consistent.

E. Characterization of value or value complex - involves an individual's unique personal characteristics and his philosophy of life. (Who am I? What do I stand for?). Probably achieved some years after formal education through thought and experience.

Types of behavior - acts almost automatically (because of a generalized set or basic orientation); is predictable; judges on the basis of consequences rather than dogma; changes beliefs when new facts and insights indicate need.

*The authors recognize that most of these types of behaviors have cognitive as well as affective aspects.

Appendix No. 3

Classification of Psychomotor Objectives and Suggested Types of Behaviors (Adapted from Simpson, The Classification of Educational Objectives, Psychomotor Domain)

Psychomotor objectives emphasize a muscular or motor skill, manipulation of material and objects, or some act which requires neuromuscular coordination.

1. Perception - the process of becoming aware of objects, qualities, or relations through the sense organs.
   Types of behaviors - is sensitive to sensory stimulations (through tasting, seeing, hearing, feeling, identifies appropriate clues and associates them with the task to be performedd and translates the clues into an image or idea.

2. Set - preparatory adjustment or readiness for an action or experience.
   Types of behavior - is ready mentally, physically, and emotionally (willing) to respond.

3. Guided response - an overt act under guidance.
   Types of behavior - imitates, tries various responses.

4. Mechanism - learned response becomes habitual.
   Types of behavior - is skilled to some extent, has a patterned response, is confident of ability.

5. Complex overt response - act carried out smoothly and efficiently.
   Types of behavior - performs complex acts confidently with ease and muscle control.

Appendix No. 4

Generalizations Basic to Test Items

No. 1 Children need to be reassured of their place in the family whenever their status is threatened.

No. 2 When family members are able to talk over with each other things which irritate them, family life is apt to be happier because they understand the others' point of view.

No. 3 Sharing work and play helps a child feel he is an important family member.

No. 4 Stains are held to cloth by chemical bonds.

No. 5 Soaps and detergents break many of the chemical bonds, particularly those containing fats or oils.

No. 6 When food contains too little protein, minerals, and vitamins, the red blood cells do not have a normal amount of their red coloring matter and the skin may be pale in color.

No. 7 Dark green and yellow vegetables and fruits are excellent sources of vitamins and minerals, especially vitamin A and iron.

No. 8 Meat, poultry, eggs, and fish are excellent sources of protein, iron, niacin, riboflavin, and thiamine. Edible organ meats, such as liver, are valued for their protein, minerals, and vitamin contributions. Nuts also contribute protein.

No. 9 Milk contains some protein and important amounts of vitamins and minerals.

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